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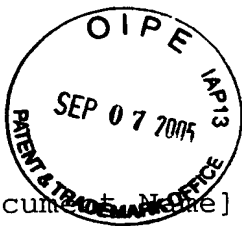
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[Designation of Document] SPECIFICATION

[Title of the Invention]

METHOD FOR PROVIDING A PRINT UNIT, A COLORING SUBSTANCE  
CARTRIDGE, A COMPUTER-READABLE RECORD MEDIUM INTO WHICH A  
CONSUMABLE PURCHASE ASSIST PROGRAM IS WRITTEN AND CONSUMABLE  
INFORMATION

[Claims]

[Claim 1] A print unit connectable to a network,  
characterized by comprising:

purchase source information acquisition means for  
acquiring via the network purchase source information of a  
consumable required for the print unit to print;

type information acquisition means for acquiring type  
information of the consumable; and

consumable information display means for displaying the  
contents of said purchase source information and said type  
information on a screen;

characterized in that said purchase source information  
contains selling agency information or further selling  
condition information.

[Claim 2] The print unit as claimed in claim 1,  
characterized in that said consumable is a coloring substance  
cartridge and/or print paper.

[Claim 3] The print unit as claimed in claim 1 or 2,  
characterized by comprising consumption degree detection means

for detecting a consumption degree of the consumable, characterized in that when said consumption degree reaches a predetermined degree number, said consumable information display means displays said purchase source information and said type information on the screen.

[Claim 4] The print unit as claimed in any of claims 1 to 3, characterized by comprising consumable information storage means for storing said purchase source information and/or said type information, characterized in that said consumable information display means acquires said purchase source information and/or said type information from said consumable information storage means.

[Claim 5] The print unit as claimed in any of claims 1 to 4, characterized in that said purchase source information acquisition means acquires said purchase source information from a dealer database site present on said network.

[Claim 6] The print unit as claimed in claim 5, characterized in that said purchase source information acquisition means outputs user's place retrieval key information to said dealer database site and loads said selling agency information extracted based on a relevant retrieval key information.

[Claim 7] The print unit as claimed in any of claims 1 to 6, characterized in that said selling agency information contains at least either of address information and map

information for locating a selling agency place.

[Claim 8] The print unit as claimed in any of claims 1 to 7, characterized in that said selling condition information contains at least either of in-stock or out-of-stock information concerning said consumable and information about availability of empty vessel collection service of said consumable.

[Claim 9] The print unit as claimed in any of claims 1 to 8, characterized by comprising a purchase information output means for outputting purchase information to a consumable selling agency's address identified according to purchase source information via said network.

[Claim 10] The print unit as claimed in claims 9, characterized in that said purchase information contains purchase mode information about whether said consumable is purchased through delivery purchase, store purchase, or store purchase reservation.

[Claim 11] A coloring substance cartridge for a print unit provided an IC memory, characterized by comprising:

recorded purchase source information for said coloring substance cartridge or a recorded address for acquiring said purchase source information.

[Claim 12] A printer unit as claimed in any of claims 4 to 10, characterized by comprising:

a coloring substance cartridge as claimed in claim 11;  
characterized in by that said IC memory functions as

consumable information storage means.

[Claim 13] A computer-readable record medium into which a consumable purchase assist program, said consumable purchase assist program incorporated in a computer to which a printer unit is connected, characterized by performing at least:

a purchase source information acquisition step for acquiring via a network purchase source information containing selling agency information of a consumable required for said print unit to print or additionally selling condition information;

a type information acquisition step for acquiring type information of said consumable from said print unit; and

a consumable information display step for displaying the contents of said purchase source information and said type information on a screen of said computer.

[Claim 14] The record medium as claimed in claim 13, characterized in that said consumable information display step comprises acquiring said purchase source information and said type information stored in consumable information storage means provided for said print unit.

[Claim 15] The record medium as claimed in claim 13 or 14, characterized in that said purchase source information acquisition step comprises acquiring said purchase source information from a dealer database site present on said network.

[Claim 16] The record medium as claimed in claim 15,

characterized in that said purchase source information acquisition step comprises outputting user's place retrieval key information to said dealer database site and loading said selling agency information extracted based on a relevant retrieval key information.

[Claim 17] The record medium as claimed in any of claims 13 to 16, characterized in that said selling agency information contains at least either of address information and map information for locating a selling agency place.

[Claim 18] The record medium as claimed in any of claims 13 to 17, characterized in that said selling condition information contains at least either of in-stock or out-of-stock information concerning said consumable and information about availability of empty vessel collection service of said consumable.

[Claim 19] The record medium as claimed in any of claims 13 to 18, characterized by comprising outputting purchase information to a consumable selling agency's address identified according to purchase source information via said network.

[Claim 20] The record medium as claimed in any of claims 13 to 19, characterized in that said purchase information contains purchase mode information about whether said consumable is purchased through delivery purchase, store purchase, or store purchase reservation.

[Claim 21] A consumable information providing method



in a dealer database site, characterized by:

receiving a purchase source information acquisition request for a consumable required for print from a print unit connected to a network and/or a computer to which a printer unit is connected; and

delivering said purchase source information to said print unit and/or computer via said network;

characterized in that said purchase source information contains selling agency information or additionally selling condition information.

[Claim 22] The consumable information providing method as claimed in claim 21, characterized in that said consumable is a coloring substance cartridge and/or print paper.

[Claim 23] The consumable information providing method as claimed in claim 21 or 22, characterized by receiving user's place retrieval key information from said print unit and/or said computer and downloading said selling agency information extracted based on a relevant retrieval key information to said print unit and/or said computer.

[Claim 24] The consumable information providing method as claimed in any of claims 21 to 24, characterized in that said selling agency information contains at least either of address information and map information for locating a selling agency place.

[Claim 25] The consumable information providing method

as claimed in any of claims 21 to 24, characterized in that said selling condition information contains at least either of in-stock or out-of-stock information concerning said consumable and information about availability of empty vessel collection service of said consumable.

[Detailed Description of the Invention]

[0001]

[Technical Field to which the Invention Belongs]

This invention relates to a printer unit such as a printer, a copier, and a facsimile, a coloring substance cartridge, a computer-readable record medium into which a consumable purchase assist program is written, and a consumable information providing method at a dealer database site. Specifically, the invention relates to the printer unit, the coloring substance cartridge, the record medium into which the program is written, whose user can know selling agency information such as the location of a near-by selling agency and selling condition information about a consumable and a consumable information providing method.

[0002]

[Related Art]

Hitherto, with a print unit such as a printer, a copier, or a facsimile, normally, when the coloring substance remaining amount of a coloring substance cartridge such as an ink cartridge,

an ink-sublimation film cartridge, a toner cartridge, or an ink ribbon cartridge became low or zero, a warning indicating the fact has been displayed on the display section of the print unit or the display of the computer connected to the print unit.

[0003]

Some print units in the related art print a warning containing the model of the ink cartridge (coloring substance cartridge) on print paper as disclosed in Japanese Patent No. 2891090, and further if the fact that the ink remaining amount of the ink cartridge (coloring substance cartridge) becomes low is detected in some facsimiles, the number of the trader to be given an order for a new ink cartridge, stored in the number storage means of the facsimile is automatically dialed, as disclosed in JP-A-7-322032.

[0004]

[Problem to be Solved by the Invention]

According to the above-described art in Japanese Patent No. 2891910, when the ink remaining amount of the ink cartridge becomes low, the printer outputs a warning on which the model is printed and thus the user can be saved from having to look up the model of the ink cartridge and make a memo of the model. However, the art involves the following problems:

[0005]

Since the warning is printed using ink getting low, essentially necessary ink in the ink cartridge decreases still

more and print paper is consumed fruitlessly. If the warning is printed when normal print is started or during printing, the throughput of the essential print operation is degraded and in addition, the warning gets mixed with the normal printed document and the user may not notice that the warning is printed.

[0006]

On the other hand, according to the above-described art in JP-A-7-322032, the problems involved in Japanese Patent No. 2891090 such that ink getting low in the ink cartridge decreases still more and that print paper is consumed fruitlessly do not arise. However, the art involves the following problem:

[0007]

A user must purchase an ink cartridge from a specific store having a phone number set to a facsimile. Even if there is another store which sells the same type of ink cartridge at a low price, the user cannot make an order from a relevant different store without a troublesome operation such as changing the phone number stored in number storage means. In addition, it takes much time (usually 24 hours or more) to obtain the cartridge after an automatic phone ordering. The user must therefore wait for obtaining the ink cartridge even in a case where an ink cartridge is required urgently. When a store from which the user has ordered the ink cartridge has no stock for that ink cartridge, the user must wait for a longer time before obtaining the cartridge. Even if the user desires to

purchase an ink cartridge directly at a store and even if the user already keeps an ink cartridge in stock, an order is automatically given for a new ink cartridge and this situation is against a user's will.

[0008]

An object of the present invention is to provide a print unit, a consumable cartridge, a computer-readable record medium into which a consumable purchase assist program is written, and a consumable information providing method, which are convenient for a user and provide room for some options for purchase mode when a time is coming when a consumable required for a print unit to print will need replacement.

[0009]

[Means for Solving the Problem]

A print unit according to the invention is a print unit connectable to a network, characterized by comprising purchase source information acquisition means for acquiring via the network purchase source information of a consumable required for the print unit to print, type information acquisition means for acquiring type information of the consumable, and consumable information display means for displaying the contents of the purchase source information and the type information on a screen, characterized in that the purchase source information contains selling agency information or further selling condition information.

[0010]

A computer into which a record medium according to the invention is connected to a network and used. The network is typically a commercial network such as the Internet.

[0011]

Print units include not only a unit for printing only, but also a facsimile, a copier and the like. A consumable required for print is typically a coloring substance cartridge (ink cartridge, toner cartridge, ink-sublimation cartridge, or ink ribbon cartridge). The consumable required for print may be print paper set in a cassette. This type of cassette is set in a print unit. When the cassette becomes empty, the entire cassette is replaced with a new cassette. That type information for a consumable is a model symbol (for example, model number) of a consumable such as a coloring substance cartridge.

[0012]

In the print unit according to the invention, the print unit can be provided with consumption degree detection means.

[0013]

In this case, when the consumption degree reaches a predetermined degree number, the consumable information display means displays purchase source information and the type information on a screen. As described above, the consumable information display means is provided for a relevant

print unit in the print unit according to the invention. The consumption degree for a consumable means a remaining amount for a coloring substance cartridge consumed if the consumable is an ink cartridge of a coloring substance cartridge. Specifically, the consumption degree is the ink remaining amount if the consumable is an ink cartridge of a coloring substance cartridge, the toner remaining amount when the consumable is a toner cartridge, the film remaining amount or the ink concentration when the consumable is an ink-sublimation cartridge, or the ink ribbon remaining amount or the ink concentration when the consumable is an ink ribbon cartridge. If the consumption degree reaches a predetermined degree number, an increase in consumption degree is the same as a decrease in ink for an ink cartridge, for example.

[0014]

In the print unit according to the invention, consumable information storage means for storing purchase source information and type information can be further provided. The consumable information storage means can be provided for a relevant print unit. If a coloring substance cartridge provided with an IC memory is used, the IC memory can be provided with a function as consumable information storage means. For example, the coloring substance cartridge can store purchase source information about the cartridge or an address from which the purchase source information has been acquired in the IC memory.

[0015]

The consumable information display means can also acquire purchase source information and type information from consumable information storage means. At this point, purchase source information acquisition means can acquire purchase source information from a dealer database site present on the network and user's place retrieval key information to the dealer database site. The purchase source information acquisition means can also output user's place retrieval key information to the dealer database site and load the selling agency information extracted based on a relevant retrieval key information.

[0016]

The selling agency information can contain at least either of address information and map information for locating a selling agency place. The selling agency information can contain at least either of in-stock or out-of-stock information concerning a consumable and information about availability of empty vessel collection service of the consumable.

[0017]

The print unit according to the invention can be provided with purchase information output means for outputting purchase information to a consumable selling agency's address identified according to purchase source information via the network. In this case, the purchase information can contain purchase mode



information about whether the consumable is purchased through delivery purchase, store purchase, or store purchase reservation.

[0018]

In addition, the record medium of the invention has a consumable purchase assist program written thereinto and is computer readable. The consumable purchase assist program is incorporated in a computer to which the print unit is connected. The consumable purchase assist program is characterized by performing (1) at least a purchase source information acquisition step for acquiring via a network purchase source information (selling agency information or additionally selling condition information) of a consumable required for the print unit to print or additionally selling condition information, (2) a type information acquisition step for acquiring type information of the consumable from the print unit, and (3) a consumable information display step for displaying the contents of the purchase source information and the type information on a screen of the computer.

[0019]

The consumable can be a coloring substance cartridge and/or printer paper. In the consumable information display step, type information can be displayed whenever purchase source information is displayed.

[0020]

In addition, the consumable information display step can comprise acquiring the purchase source information and the type information stored in consumable information storage means provided for the print unit. In addition, the purchase source information acquisition step can comprise acquiring the purchase source information from a dealer database site present on the network. The purchase source information acquisition step also can outputting user's place retrieval key information to the dealer database site and loading the selling agency information extracted based on a relevant retrieval key information.

[0021]

The selling agency information can contain at least either of address information and map information for locating a selling agency place.

[0022]

The selling condition information can also contain at least either of in-stock or out-of-stock information concerning the consumable and information about availability of empty vessel collection service of the consumable.

[0023]

In addition, the invention can comprise a purchase information output step for outputting purchase information to a consumable selling agency's address identified according to purchase source information via the network. At this point,

the purchase information can contain purchase mode information about whether the consumable is purchased through delivery purchase, store purchase, or store purchase reservation.

[0024]

A consumable information providing method according to the invention is performed at a dealer database site. The consumable information providing method is characterized by receiving a purchase source information acquisition request for a consumable required for print from a print unit connected to a network and/or a computer to which a printer unit is connected and delivering the purchase source information to the print unit and/or computer via the network, characterized in that the purchase source information contains selling agency information or additionally selling condition information. In this case, the consumable can be a coloring substance cartridge and/or printer paper.

[0025]

The consumable information providing method can also comprise receiving user's place retrieval key information from the print unit and/or the computer and downloading the selling agency information extracted based on a relevant retrieval key information to the print unit and/or the computer.

[0026]

In addition, the selling agency information can also contain at least either of address information and map

information for locating a selling agency place. The selling condition information can contain at least either of in-stock or out-of-stock information concerning the consumable and information about availability of empty vessel collection service of the consumable.

[0027]

[Mode for Carrying out the Invention]

FIG. 1 is a drawing to describe a schematic configuration of a print unit in one embodiment of the invention (hereinafter referred to as "the first embodiment"). The print unit 100 according to the first embodiment has a network function and can be connected to a network (Internet) 220 via a public line 210. A consumable dealer database site 600 is connected to the network 220. The consumable dealer database site 600 is shown as a Web server 620 comprising a storage unit 610 in FIG. 1, but substantially may be a so-called home page opened on the network. The consumable information providing method according to the invention is performed at the consumable dealer database site 600. The functions or actions of the consumable dealer database site 600 will be described below as required.

[0028]

The print unit 100 shown in FIG. 1 is provided with purchase source information acquisition means 101, type information acquisition means 102, consumable information display means 103, consumption degree detection means 104, consumable

information storage means 105, and purchase information output means 106, as shown in FIG. 2.

[0029]

The purchase source information acquisition means 101 can acquire purchase source information BS (including selling agency information DEAL or additionally selling condition information TERM) via a network 220. The type information acquisition means 102 can acquire type information ST of a consumable (an ink cartridge 900 provided with an IC memory 901 in the first embodiment, as described later). In addition, the consumable information display means 103 can display the contents of the purchase source information BS and the type information ST on a screen. The consumption degree detection means 104 can detect a consumption degree for a consumable such as an ink remaining amount for an ink cartridge.

[0030]

In addition, the consumable information storage means 105 can store purchase source information BS and type information ST. The purchase information output means 106 can output purchase information BUY to a consumable selling agency's address identified according to the purchase source information BS via the network 220.

[0031]

FIG. 3 is a detailed functional block diagram of the print unit 100. In FIG. 3, The print unit 100 is a unit for printing

an image picked up with a digital camera, for example. It has a central processing section 110, an image read section 120, image expansion means 130, a printer section 140, a communication section 150, a user interface section 160, and a memory section 170. In FIG. 3, ink remaining amount detection means (corresponding to the consumption degree detection means 104 in FIG. 2) and cartridge type detection means (corresponding to the type information acquisition means 102) are not provided as independent hardware units, and the central processing section 110 are responsible for these functions.

[0032]

The image read section 120 has a memory card slot 121 and an image input section 122 for inputting image data G\_DATA through the memory card slot 121. A memory card 124 for a digital camera is placed in the memory card slot 121. The image input section 122 reads image data G\_DATA in a format such as JPEG from the memory card 124 and stores the image data in an image data area 1711 in RAM 171 of the memory section 170.

[0033]

The image expansion means 130 converts the image data G\_DATA stored in the image data area 1711 into print data P\_DATA in response to a user's print request and stores the print data in a print data area (print buffer) 1712 in the RAM 171.

[0034]

The printer section 140 contains a carriage drive section

141, a print head drive section 143, and a print paper transport control section 145. A print head 144 is mounted on a carriage 142 and the carriage drive section 141 reciprocates the carriage along a platen not shown. The print head drive section 143 sends a drive signal to the print head 144 for printing an image corresponding to the print data P\_DATA stored in the RAM 171 of the memory section 170 on print paper in cooperation with moving the carriage 142 by the carriage drive section 141 and transporting print paper by the print paper transport control section 145.

[0035]

An ink remaining amount information area 902 and a type information area 903 are allocated to the IC memory 901 of an ink cartridge 900. Ink remaining amount (consumption degree in the invention) information REST detected by the central processing section 110 is written into the ink remaining amount information area 902. The IC memory 901 corresponds to the consumable information storage means 105 in FIG. 2. If a cartridge having no IC memory is mounted, the ink remaining amount information REST can be written into nonvolatile memory 172. Purchase source information and/or type information of each cartridge and the address of the party from which the cartridge is gotten may be recorded in the IC memory 901. In this case, when the ink cartridge 900 is placed in the printer (is mounted on the carriage 142), the purchase source information,

the type information, the address of the party from which the cartridge is gotten, etc., may be written into appropriate memory in the printer. In the embodiment, the purchase source information contains selling agency information and at least either of selling condition information and purchase mode information.

[0036]

The ink remaining amount information REST about the ink cartridge 900, detected by the central processing section 110 is written into the ink remaining amount information area 902, as described later. The type information ST of the ink cartridge 900, detected by the central processing section 110 (corresponding to the consumption degree detection means 104 in FIG. 2) is written into the type information area 903, as described later.

[0037]

The communication section 150 can issue an acquisition request BS\_REQ of purchase source information about an ink cartridge to the dealer database site 600 (see FIG. 1) through the communication network 220 and can acquire the purchase source information BS from the dealer database site 600. The communication section 150 and a consumable information acquisition program stored in a nonvolatile memory 172 of the memory section 170 constitute the purchase source information acquisition means 101 in FIG. 2. In addition, the communication



section 150 also serves as the purchase information output means 106 in FIG. 2.

[0038]

The user interface section 160 consists of a display section 161 and an operation section 162. The display section 161 is functionally the same as the consumable information display means 103 shown in FIG. 2. Specifically, the display section 161 contains a liquid crystal display panel, LED indicators, etc., for displaying a low ink remaining amount warning, a no-paper warning, cleaning information, etc.

[0039]

The operation section 162 is made up of a touch panel, a keyboard, etc., and enables the user to switch the display mode and perform reset operation.

[0040]

The memory section 170 consists of the above-mentioned RAM 171 and nonvolatile memory 172. The image data area 1711 and the print data area 1712 are allocated in the RAM 171, as previously described. A purchase source information area 1721 and a program storage area 1724 are allocated in the nonvolatile memory 172. The purchase source information BS (containing selling agency information DEAL and selling condition information TERM) is written into the purchase source information area 1721, as described above.

[0041]

In the program storage area 1724, an ink remaining amount detection program, a cartridge type detection program, a cartridge ordering assist program, a cartridge replacement assist program, and a database site access program (containing a consumable information acquisition program described earlier) as well as a printer control program are written.

[0042]

As for the ink remaining amount, in the first embodiment, the central processing section 110 updates the ink remaining amount information REST stored in the ink remaining amount information area 902 each time a predetermined amount of ink is consumed. The IC memory 901 is attached to the ink cartridge 900 as described above and the central processing section 110 can acquire the type information ST of the ink cartridge 900 for knowing the type of the ink cartridge 900.

[0043]

FIG. 4 is a schematic configuration diagram of a consumable purchase assist system for describing another embodiment of the invention. In this embodiment (hereinafter referred to as "the second embodiment"), a consumable purchase assist system 300 consists of a print unit 400 and a personal computer 500 to which the print unit 400 is connected, as shown in FIG. 4. In FIG. 4, the personal computer 500 has a network function. The personal computer 500 is configured to be connectable to a public line 210 and a network 220. The same consumable dealer

database site 60 described in the first embodiment is connected to the network 220.

[0044]

As shown in FIG. 5, the print unit 400 of the consumable purchase assist system 300 is provided with type information acquisition means 401, consumption degree detection means 402, and consumable information storage means 403. A personal computer 500 is provided with purchase source information acquisition means 501, consumable information display means 502, and purchase information output means 503. The print unit 4001 and the computer side of the personal computer 500 are connected to each other via ports 504 and 404.

[0045]

The purchase source information acquisition means 501, the consumable information display means 502, and the purchase information output means 503, shown in a block in FIG. 5, are practically composed of a processor (CPU and the like) in the computer 500 and a consumable purchase assist program according to the invention. In other words, the purchase source information acquisition means 501, the consumable information display means 502, and the purchase information output means 503 are implemented by performing the purchase source information acquisition step, consumable information display step, and purchase information output step according to the invention.

[0046]

Type information acquisition means 401 in the print unit 400 can acquire type information ST from a IC memory 901 provided for an ink cartridge 900 as a consumable. In addition, consumption degree detection means 402 can detect the consumption degree of a consumable through a predetermined technique. The consumable information storage means 403 can store purchase source information BS such as a selling agency name.

[0047]

The purchase source information acquisition means 501 in the personal computer 500 can acquire purchase source information BS (containing selling agency information DEAL or additionally selling condition inform TERM) via the network 220. The consumable information display means 502 can display contents of purchase source information BS and type information ST on the personal computer 500. The purchase information output means 503 can output purchase information BUY via the network 220 to a predetermined consumable dealer database site 600 (see FIG. 4) or a consumable selling agency's address identified according to the purchase source information BS.

[0048]

FIG. 6 a detailed functional block diagram of a consumable purchase assist system 300. In FIG. 6, the consumable purchase assist system 300 has It has a central processing section 410,

a printer section 420, a memory section 430, and a port 440. In FIG. 6, ink remaining amount detection means (corresponding to the consumption degree detection means 402 in FIG. 5) and cartridge type detection means (corresponding to the type information acquisition means 401) are not provided as independent hardware units, and the central processing section 410 are responsible for these functions.

[0049]

The printer section 420 contains a carriage drive section 421, a print head drive section 423, and a print paper transport control section 424. A print head 424 is mounted on a carriage 422. The print head drive section 423 sends a drive signal to the printer head 424 for printing an image corresponding to the print data P\_DATA stored in the memory section 420. The operation of these sections is the same as the operation of the carriage drive section 141, print head drive section 143, and print paper transport control section 145 of the printer section 140 in the first embodiment. The ink cartridge 900 in FIG. 6 is the same as in FIG. 3. An ink remaining amount information area 902 and a type information area 903 are allocated to the IC memory 901. Ink remaining amount (consumption degree in the invention) information REST detected by the central processing section 410 is written into the ink remaining amount information area 902. Type information ST for the ink cartridge 900 detected by the central processing

section 410 (corresponding to the type information acquisition means 401 in FIG. 5) is written into the type information area 903. The IC memory 901 corresponds to the consumable information storage means 403 in FIG. 5. If a cartridge having no IC memory is mounted, the ink remaining amount information REST can be written into the nonvolatile memory 432 described above.

[0050]

The memory section 430 consists of RAM 431 having a print date (P\_DATA) area and nonvolatile memory 432 having a program storage area (containing an ink remaining amount detection program and a cartridge type detection program as well as a printer control program).

[0051]

The personal computer 500 has a central processing section 510, a communication section 520, a user interface section 530, a memory section 540, a hard disk unit 550, and a port 560.

[0052]

The communication section 520 functions in the same way as the communication section 150 in FIG. 3. The communication section 520 can issue a request for acquiring purchase source information about ink cartridge (BS\_REQ) to the dealer database site 600 (see FIG. 4) through the communication network 220 and acquire the purchase source information BS from the dealer database site 600. The communication section 520 and a

consumable information acquisition program stored in nonvolatile memory 542 of the memory section 540 constitute the purchase source information acquisition means 501 in FIG. 5. In addition, the communication section 520 also serves as the purchase information output means 503 in FIG. 5.

[0053]

The user interface section 530 consists of a display section 531 and an operation section 532. The display section 531 is a computer display and functionally the same as the consumable information display means 502 shown in FIG. 5. the operation section 532 normally is made up of a keyboard or soft buttons on the computer display.

[0054]

The memory section 540 consists of RAM 541 and nonvolatile memory 542 like that of a usual computer.

[0055]

A purchase source information area 551 and a program storage area 552 are allocated to the hard disk unit 550. The purchase source information BS (containing selling agency information DEAL and selling condition information TERM) is written into the purchase source information area 551. In addition to a printer driver, a cartridge ordering assist program, a cartridge replacement assist program, and a database site access program (containing a consumable information acquisition program described earlier) are stored in the program

storage area 552.

[0056]

The print unit 400 and the computer can communicate with each other through a port 440 and the port 560. For example, the print unit 400 can load print data P\_DATA from the hard disk 560 of the personal computer 500 and store the print data in the print data area of the RAM 431 of the memory section 430 and on the other hand, can send the ink remaining amount information REST stored in the ink remaining amount information area 902 of the IC memory 901 to the personal computer 500.

[0057]

The operation of the first embodiment and the second embodiment will be discussed below with reference to flowcharts of FIGs. 7 and 9 and various display screen examples. Assume that print data P\_DATA is stored in the image data area 1711 of the memory section 170 in the first embodiment. The print data P\_DATA is prepared as the image expansion means 130 expands the image data G\_DATA from the memory card 124 placed in the memory card slot 121 as described above.

[0058]

In FIG. 7, when the user gives an instruction to print an image for the print data P\_DATA, an ink remaining amount detection program (corresponding to the consumption degree detection means 104 in FIG. 2 or the consumption degree detection means 402 in FIG. 5) is started and determines whether or not



the value of the ink remaining amount information REST about the ink cartridge becomes equal to or less than a first threshold value N1 (S10). The first threshold value N1 is set smaller than a second threshold value N2 described later. In the second embodiment, the value indicated by the ink remaining amount information REST is set so that the lower the ink remaining amount, the smaller the value. Here, as for the value of the ink remaining amount information REST, the ink amount found by counting the number of ink drops ejected through the print head and the amount of ink ejected through the print head using suction means (not shown) at the cleaning time can be added together to find the value of the ink consumption amount, namely, the ink remaining amount is the ink amount in the ink cartridge when the ink cartridge is unused minus the ink consumption amount.

[0059]

Specifically, the ink remaining amount detection program looks up the value of the ink remaining amount information REST stored in the ink remaining amount information area 902 in the IC memory 901 in FIG. 3 or 6 and determines whether or not the ink remaining amount in the ink cartridge 900 is an amount to such an extent that the ink cartridge should be immediately replaced, namely, determines whether or not the value of the ink remaining amount information REST recorded in the ink remaining amount information area 902 is equal to or less than

the first threshold value N1.

[0060]

When the value of the ink remaining amount information REST is greater than the first threshold value N1, further whether or not the value is equal to or less than the second threshold value N2 is determined (S20).

[0061]

That is, the ink remaining amount detection program looks up the value of the ink remaining amount information REST stored in the ink remaining amount information area 902 in FIG. 3 or 6 and determines whether or not the ink remaining amount in the ink cartridge 900 is an amount to such an extent that the ink cartridge should be shortly replaced (for example, about 10% of the ink amount in the ink cartridge just after purchased), namely, determines whether or not the value of the ink remaining amount information REST recorded in the ink remaining amount information area 902 is equal to or less than the second threshold value N2.

[0062]

When the value of the ink remaining amount information REST is greater than the second threshold value N2, the ink remaining amount detection program starts print processing (S50). On the other hand, when the value of the ink remaining amount information REST is equal to or less than the second threshold value N2, the ink remaining amount detection program

determines whether or not execution of a cartridge ordering assist sequence is refused (S30). Refusal of execution of the cartridge ordering assist sequence is registered in a nonvolatile storage area (nonvolatile register R) (not shown) if the user already keeps an ink cartridge in stock in hand. If execution of the cartridge ordering assist sequence is not refused, a message of "the remaining amount in the ink cartridge becomes low. Assist sequence is executed" or the like is displayed and while the cartridge ordering assist sequence (cartridge ordering assist program) described later is started (S40), print processing at step S50 is started. In contrast, if execution of the cartridge ordering assist sequence is refused (see S 420 in FIG. 9), print processing at step S50 is started without starting the cartridge ordering assist sequence. Whenever one page is printed as print processing at step S50 is performed, the ink remaining amount information REST is updated (S60) and whether or not another page to be printed exists is determined (S70). If another page exists, the process is returned to step S10; if another page does not exist, the processing is terminated. The ink remaining amount information REST may be updated each time one page is printed, as described above; the information REST may be updated each time the value of the ink remaining amount information REST is decreased by a predetermined amount, each time a predetermined number of lines are printed, each time a predetermined number of pages

are printed, or each time one print job is executed. The ink remaining amount information REST is updated by the CPU of the central processing section 110.

[0063]

On the other hand, when the value of the ink remaining amount information REST is equal to or less than the first threshold value N1 at step S10, a cartridge replacement warning of "ink cartridge needs to be replaced" or the like is displayed (S80). The warning at step S80 is displayed on the display section 161 of the user interface section 160 in FIG. 3 (in the first embodiment) and on the display section 531 of the user interface section 530 in FIG. 6 (in the second embodiment).

[0064]

After the cartridge replacement warning is displayed at step S80, the print is interrupted (S90). The subsequent processing varies depending on whether or not the user makes a request for replacing the cartridge (S100).

[0065]

FIG. 8 is a drawing to show a display example of the display section 161 at steps S80 to S100 in the second embodiment and shows a status screen containing warning display A1 with a comment of "The remaining color ink amount becomes low. Replace the ink cartridge. Model of color ink cartridge: XXXYY02." In FIG. 8, graphics A2 representing the ink cartridges and the ink remaining amount state is displayed and further an ACTION

soft button A3 and a CLOSE soft button A4 are provided. The above-mentioned step S100 branches depending on which of the ACTION soft button A3 and the CLOSE soft button A4 is clicked.

[0066]

If the user does not make a request for replacing the ink cartridge 900 (for example, the user selects the CLOSE soft button A4 in FIG. 8), control is transferred to step S50 and print processing is performed; if the user makes a request for replacing the ink cartridge 900 (for example, the user selects the ACTION soft button A3 in FIG. 8), a cartridge replacement assist sequence (cartridge replacement assist program) is started (S110).

[0067]

The cartridge replacement assist sequence shows graphically, etc., an ink cartridge replacement procedure for the user who is unfamiliar with ink cartridge replacement. The cartridge replacement assist sequence is exited when the user stops replacing the ink cartridge and makes a request for restarting print or when the user replaces the cartridge as he or she intends originally (S120).

[0068]

At step S120, if finally the user does not replace the ink cartridge, print is restarted and control is transferred to step S50; if the user replaces the ink cartridge, the process is returned to step S10. In the cartridge replacement assist

sequence, whether or not the ink cartridge has been replaced can be determined as the central processing section 410 in FIG. 6 looks up the serial number of the ink cartridge recorded in the IC memory 901, for example.

[0069]

FIG. 9 is a flowchart to show processing at step S40 in FIG. 7 in detail. In FIG. 9, when the cartridge ordering assist program is started, first a wait is made for the user to specify whether or not the cartridge ordering assist program is to be continued (S410). If the user gives an instruction for continuing the cartridge ordering assist sequence, further a wait is made for the user to specify whether or not he or she makes a delivery purchase request (S411). If the user gives an instruction for stopping the cartridge ordering assist sequence, refusal of execution of the cartridge ordering assist sequence is registered in the above-mentioned register R (not shown) (S420).

[0070]

Specifically, a menu for requesting the user to select delivery purchase or store purchase is displayed on the display section 161 of the user interface section 160 in FIG. 3 (in the first embodiment) and on the display section 531 of the user interface section 530 in FIG. 3 (in the second embodiment).

[0071]

FIG. 10 is a drawing to show a display example of the

display section 531 at step S411 (status screen) in the second embodiment wherein display B1 with a comment of "The replacement purchase timing of color ink draws near. Model of color ink cartridge: XXXYY02," graphics B2 representing the ink cartridges and the ink remaining amount state, a DELIVERY PURCHASE soft button B3, a STORE PURCHASE soft button B4, and a CANCEL button B5 are provided. Here, if the CANCEL button B5 is clicked, then the message is not displayed and refusal of execution of the cartridge ordering assist sequence is registered at S420 described later and control is transferred to step S50 in FIG. 3.

[0072]

If either of the DELIVERY PURCHASE soft button B3 and the STORE PURCHASE soft button B4 is clicked in the second embodiment, a menu for determining user's qualification shown in FIG. 11 is displayed. The display section 161 in FIG. 11 contains an ID input field C1, a password input field C2, an EXECUTE soft button C3, a RETURN soft button C4, and an ID ACQUISITION soft button C5. When the ID and the password are valid and the EXECUTE soft button C3 is clicked, control advances to the next step. When the ID or the password is invalid and the EXECUTE soft button C3 is clicked, a comment of "ID or password is incorrect." (not show) or the like is displayed and control cannot advance to the next step. When the RETURN soft button C4 is clicked, the menu screen in FIG. 7 is returned to the

screen in FIG. 6. If the user is unregistered, he or she can become the formal registered user by clicking the ID ACQUISITION soft button C5.

[0073]

If the user makes a delivery purchase request, the print unit 100 is connected to the consumable dealer database site 600 (see FIGs. 1 and 4) in the first embodiment while the personal computer 500 is connected to the consumable dealer database site 600 in the second embodiment (S412). When one of these connections takes place, type information ST is sent to the site (S413). After this, the print unit 100 in the first embodiment and the personal computer 500 in the second embodiment acquire selling agency information DEAL and selling condition information TERM from the consumable dealer database site 600 and displays them on the display section (see reference numeral 161 in FIG. 3 and reference numeral 531 in FIG. 6) (S414).

[0074]

The selling agency information DEAL contains various conditions of the selling agency name, stock, etc., and the selling condition information TERM contains various conditions of the selling price, a condition as to whether or not the used ink cartridge is to be collected, the delivery time, etc.

[0075]

FIG. 12 is a drawing to show a display example of the display section 531 at step S414 (status screen) in the second



embodiment. The display section 531 displays display B1 in FIG. 10, EMPTY VESSEL COLLECTION SERVICE YES radio button D1 and NO radio button D2, a RETRIEVAL EXECUTION soft button D3, and a RETURN soft button D4. In this case, if the EMPTY VESSEL COLLECTION SERVICE YES radio button D1 is made active and the RETRIEVAL EXECUTION soft button D3 is clicked, the display of the display section 531 is changed to the screen shown in FIG. 13 described later. In the first embodiment, data indicating whether or not the empty vessel collection service is YES can be previously registered in a predetermined register.

[0076]

Next, whether or not the selling agency information DEAL contains "stock information" is determined (S415). If the selling agency information DEAL contains stock information, processing is performed in response to whether or not the user makes a request for ordering (S416). If the selling agency information DEAL does not contain stock information, processing is performed in response to whether or not the user makes a reservation request (S418).

[0077]

If a request for ordering is made at step S416, purchase information BUY (immediate delivery) is sent to the consumable dealer database site 600 (S417) and refusal of execution of the cartridge ordering assist sequence is registered in the register R (not shown) (S420), then control is transferred to

step S50 in FIG. 7.

[0078]

If a request for reservation is made at step S418, purchase information BUY (reservation) is sent to the consumable dealer database site 600 (S419) and refusal of execution of the cartridge ordering assist sequence is registered in the predetermined register R (S420), then control is transferred to step S50 in FIG. 7.

[0079]

If a request for ordering is not made at step S416 or if a request for reservation is not made at step S418, the user is requested to determine whether or not the future execution of the cartridge ordering assist sequence is to be refused (namely, whether or not the future execution of the cartridge ordering assist sequence is refused is determined) (S421). Here, when the future execution of the cartridge ordering assist sequence is refused, refusal of execution of the assist sequence is registered in the predetermined register R (S420); when the future execution is not refused, refusal of execution of the assist sequence is not registered and then control is transferred to step S50 in FIG. 7.

[0080]

FIG. 13 is a drawing to show display on the display section 531 to determine whether or not "stock information" is contained in the second embodiment. The display section 531 displays

display B1 in FIG. 10, a dialog box E1 listing "selling agencies," a STOCK CHECK soft button E2, and a RETURN soft button E3 in FIG. 9. If the user clicks on the STOCK CHECK soft button E2, whether or not the selling agency displayed in the dialog box E1 is in stock on the ink cartridge is checked. If the ink cartridge is in stock, the display on the display section 531 changes to a screen containing display B1 in FIG. 10, an ORDER soft button F1, and a RETURN soft button F2 as shown in FIG. 14. The display section 531 in FIG. 10 may be provided with a CANCEL soft button so that when the CANCEL soft button is clicked, the process is returned to step S410 described above.

[0081]

On the other hand, if the user makes a store purchase request at step S411, the print unit 100 is connected to the consumable dealer database site 600 (see FIGs. 1 and 4) (S422) and type information ST and resident area information REG are sent to the site (S423). After this, selling agency information DEAL is acquired from the consumable dealer database site 600 and is displayed on the display section (see reference numeral 161 in FIG. 3 and reference numeral 531 in FIG. 6) (S424).

[0082]

After this, the user is requested to determine whether or not he or she makes a reservation request (S425). If the user makes a reservation request, reservation information is sent to the selling agency address (for example, mail address)

(S426) and control is transferred to step S420. If the user does not make a reservation request, reservation information is not sent and control is transferred to step S421 for requesting the user to determine whether or not the future execution of the cartridge ordering assist sequence is to be refused (namely, for determining whether or not the future execution of the cartridge ordering assist sequence is refused).

[0083]

In the second embodiment, display shown in FIGS. 15 to 19 can be produced on the display section 531 at steps S423 to S425. FIG. 15 is a drawing to show a display example of the display section when the selling agency information DEAL is downloaded from the consumable dealer database site. In FIG. 15, the display B1 with the comment of "The replacement purchase timing of color ink draws near. Model of color ink cartridge: XXXYY02" shown in FIG. 10 is also displayed and in addition, a map G1 to specify an ink cartridge agency by area. If the user clicks on Kanto area, for example, on the map, as shown in FIG. 16, a list H1 of "prefecture names" and "administrative jurisdiction area names" ("23 wards" and "city names" in FIG. 16) in Kanto area is displayed. Further, if the user clicks on "23 wards," a list of 23 wards appears (not shown). If the user selects a predetermined ward out of the list, a "store name" list I1 corresponding to the corresponding "ward name" is displayed as shown in FIG. 17.

[0084]

If the user clicks on a specific "store name" out of the "store name" list I1 in FIG. 17, the display B1 shown in FIG. 10, the address of the specific "store name," a map, selling conditions (here, collection service available or unavailable and in stock or out of stock), a store purchase RESERVATION soft button J1, and a RETURN soft button J2 are displayed as shown in FIG. 18. If the user clicks on the RESERVATION soft button J1 in FIG. 14, a QUIT soft button K1, a CANCEL soft button K2, and a PRINT soft button K3 can also be displayed on the display section 531 as shown in FIG. 19. If the user clicks on the QUIT soft button K1, control is transferred to step S426. If the user clicks on the PRINT soft button K3, print processing is interrupted and the map, the selling store address, and the like displayed in FIG. 18 or 19 are printed.

[0085]

[Advantage of the Invention]

A user of a print unit can selling agency information such as a near-by selling agency place and selling condition information about a consumable from the print unit or a computer connected to the print unit through a simple operation. This allows the user to purchase a consumable conveniently and through more purchase mode options when the time is coming when the consumable required for the print unit to print will need replacement.

[0086]

A warning is displayed particularly before the ink remaining amount for a ink cartridge becomes extremely low. Therefore, the user can make an order or purchase or an order and purchase reservation without being in a hurry and need not print out a warning sheet. This therefore avoids a reduction in a primary printer operation throughput and prevents a warning sheet from getting mixed with common printed sheets.

[0087]

In addition, the user can select one of a plurality of selling agencies through a simple operation (i. e., select one from a dialog box and the like) and purchase an ink cartridge.

[0088]

The user can also select either delivery purchase or store purchase. In case of store purchase, the user can obtain a map of the nearest store. This allows the user to purchase an ink cartridge promptly in case the user needs an ink cartridge urgently.

[Brief Description of Drawings]

Fig. 1 is a drawing to describe a schematic configuration of a print unit in a first embodiment of the invention;

Fig. 2 is a simple functional block diagram of the print unit in the first embodiment of the invention;

Fig. 3 is a detailed functional block diagram of the print unit in the first embodiment of the invention;

Fig. 4 is a drawing to describe a schematic configuration of a consumable purchase assist system in a second embodiment of the invention;

Fig. 5 is a drawing to describe a schematic configuration of a cartridge replacement assist system in a second embodiment of the invention;

Fig. 6 is a detailed functional block diagram of the cartridge replacement assist system in the second embodiment of the invention;

Fig. 7 is a flowchart to describe the whole operation of the print unit of the first embodiment and the consumable assist system of the second embodiment;

Fig. 8 is a drawing to show a display example of a display section at steps S80 to S100 in the second embodiment;

Fig. 9 is a flowchart to show a cartridge ordering assist sequence in the flowchart in FIG. 7;

Fig. 10 is a drawing to show a display example of the display section at step S411 in the second embodiment;

Fig. 11 is a drawing to show a menu for determining user's qualification in the second embodiment;

Fig. 12 is a drawing to show a display example of the display section at step S414 in the second embodiment;

Fig. 13 is a drawing to show display on the display section to determine whether or not "stock information" is contained in the second embodiment;

Fig. 14 is a drawing to show display on the display section when a STOCK CHECK soft button is clicked at the display section in FIG. 13;

Fig. 15 is a drawing to show a display example of the display section when selling agency information is downloaded from a consumable dealer database site;

Fig. 16 is a drawing to show display of a list of "prefecture names," "23 wards," and "city names" when the user clicks on Koshinetsu area in a map in FIG. 15;

Fig. 17 is a drawing to show display of a "store name" list corresponding to a specific "ward name" clicked by the user out of a list of 23 wards displayed as the user clicks on "23 wards" in FIG. 16;

Fig. 18 is a drawing to show display of "store name" address, map, selling conditions, a RESERVATION soft button, and a RETURN soft button when the user clicks on a specific "store name" out of the "store name" list in FIG. 17; and

Fig. 19 is a drawing to show display of a QUIT soft button and a PRINT soft button when the user clicks on the RESERVATION soft button in FIG. 18.

[Description of the Reference Numerals and Signs]

100, 400: PRINT UNIT

101, 501 PURCHASE SOURCE INFORMATION ACQUISITION MEANS

102, 401 TYPE INFORMATION ACQUISITION MEANS

103, 502 CONSUMABLE INFORMATION DISPLAY MEANS



104, 402 CONSUMPTION DEGREE DETECTION MEANS  
105, 403 CONSUMABLE INFORMATION STORAGE MEANS  
106, 503 PURCHASE INFORMATION OUTPUT MEANS  
110, 410, 510 CENTRAL PROCESSING SECTION  
120 IMAGE READ SECTION  
121 MEMORY CARD SLOT  
122 IMAGE INPUT SECTION  
124 MEMORY CARD  
130 IMAGE EXPANSION MEANS  
140, 420 PRINTER SECTION  
141, 421 CARRIAGE DRIVE SECTION  
142, 422 CARRIAGE  
143, 423 PRINT HEAD DRIVE SECTION  
144, 424 PRINT HEAD  
145, 425 PRINT PAPER TRANSPORT CONTROL SECTION  
150, 520 COMMUNICATION SECTION  
160, 530 USER INTERFACE SECTION  
161, 531 DISPLAY SECTION  
162, 532 OPERATION SECTION  
170, 430, 540 MEMORY SECTION  
171, 431, 541 RAM  
172, 432, 542 NONVOLATILE MEMORY  
210 PUBLIC LINE  
220 NETWORK  
300 CONSUMABLE PURCHASE ASSIST SYSTEM

404, 440, 504, 560 PORT  
500 PERSONAL COMPUTER  
550 HARD DISK UNIT  
551, 1721 PURCHASE SOURCE INFORMATION AREA  
552, 1724 PROGRAM STORAGE AREA  
600 CONSUMABLE DEALER DATABASE SITE  
610 STORAGE UNIT  
620 SERVER  
900 INK CARTRIDGE  
901 IC MEMORY  
902 INK REMAINING AMOUNT INFORMATION AREA  
903 TYPE INFORMATION AREA  
1711 IMAGE DATA AREA  
1712 PRINT DATA AREA  
[Name of Document] Drawing

FIG. 1

[Name of Document]        Abstract

[Abstract]

[Problem] To provide a print unit that allows a user to purchase a consumable easily, a computer-readable record medium into which a consumable purchase assist program is written, and a consumable information providing method at a dealer database site.

[Means for Resolution] A consumable purchase assist program is incorporated into a computer 500 to which a print unit is connected and is characterized by comprising at least a purchase source information acquisition step for acquiring via a network 220 purchase source information containing selling agency information of a consumable required for the print unit 400 to print or additionally selling condition information, a type information acquisition step for acquiring type information of the consumable from the print unit; and a consumable information display step for displaying the contents of the purchase source information and the type information on a screen of the computer.

[Selected Drawing] FIG. 4

FIG. 3

101 PRINT UNIT  
101 PURCHASE SOURCE INFORMATION ACQUISITION MEANS  
102 TYPE INFORMATION (ST) ACQUISITION MEANS  
TYPE INFORMATION (ST) OF INK CARTRIDGE  
103 CONSUMABLE INFORMATION (BS, ST) DISPLAY MEANS  
104 CONSUMPTION DEGREE DETECTION MEANS  
105 CONSUMABLE INFORMATION (BS, ST) STORAGE MEANS  
106 PURCHASE INFORMATION OUTPUT MEANS  
PURCHASE INFORMATION BUY (DEAL, TERM)  
PURCHASE SOURCE INFORMATION BS  
220 COMMUNICATION NETWORK  
110, 410, 510 CENTRAL PROCESSING SECTION

FIG. 4

100 PRINT UNIT  
110 CENTRAL PROCESSING SECTION  
120 IMAGE READ SECTION  
122 IMAGE INPUT SECTION  
130 image expansion means  
140 printer section  
141 carriage drive section  
143 PRINT HEAD DRIVE SECTION  
145 PRINT PAPER TRANSPORT CONTROL SECTION  
150 COMMUNICATION SECTION

160 USER INTERFACE SECTION  
161 DISPLAY SECTION  
162 OPERATION SECTION  
170 MEMORY SECTION  
1711 IMAGE DATA AREA G\_DATA  
1712 PRINT DATA AREA P\_DATA  
172 (NONVOLATILE MEMORY)  
1721 PURCHASE SOURCE INFORMATION AREA BS (DEAL, TERM)  
1724 PROGRAM STORAGE AREA

FIG. 6

220 COMMUNICATION NETWORK  
400 PRINT UNIT  
401 TYPE INFORMATION ACQUISITION MEANS  
402 CONSUMPTION DEGREE DETECTION MEANS  
403 CONSUMABLE INFORMATION STORAGE MEANS  
404 PRINTER-SIDE PORT  
TYPE INFORMATION ST FOR INK CARTRIDGE  
PURCHASE SOURCE INFORMATION BS (DEAL, TERM)  
500 PERSONAL COMPUTER  
501 PURCHASE SOURCE INFORMATION ACQUISITION MEANS  
502 CONSUMABLE INFORMATION (BS, ST) DISPLAY MEANS  
503 PURCHASE INFORMATION OUTPUT MEANS  
504 COMPUTER-SIDE PORT

FIG. 7

400 PRINT UNIT  
410 CENTRAL PROCESSING SECTION  
420 PRINTER SECTION  
421 CARRIAGE DRIVE SECTION  
423 PRINT HEAD DRIVE SECTION  
425 PRINT PAPER TRANSPORT CONTROL SECTION  
430 MEMORY SECTION  
PRINT DATA AREA P\_DATA  
432 (NONVOLATILE MEMORY)  
PROGRAM STORAGE AREA  
440 PORT  
500 PERSONAL COMPUTER  
510 CENTRAL PROCESSING SECTION  
520 COMMUNICATION SECTION  
530 USER INTERFACE SECTION  
531 DISPLAY SECTION  
532 OPERATION SECTION  
540 MEMORY SECTION  
542 (NONVOLATILE MEMORY)  
PROGRAM STORAGE AREA  
560 PORT

FIG. 8

START

S10 IS REST EQUAL ABOVE FIRST THRESHOLD VALUE N1?  
S20 IS REST EQUAL ABOVE SECOND THRESHOLD VALUE N2?  
S30 IS EXECUTION OF CARTRIDGE ORDERING ASSIST SEQUENCE REFUSED?  
S40 START CARTRIDGE ORDERING ASSIST SEQUENCE  
S50 PERFORM PRINT PROCESSING  
S60 UPDATE INK REMAINING AMOUNT INFORMATION REST  
S70 DOES ANOTHER PAGE EXIST?  
END  
S80 DISPLAY CARTRIDGE REPLACEMENT WARNING  
S90 INTERRUPT PRINT  
S100 DOES USER MAKE A REQUEST FOR REPLACING CARTRIDGE?  
S110 START CARTRIDGE REPLACEMENT ASSIST SEQUENCE  
S120 CARTRIDGE REPLACED?

FIG. 9

A1

THE REMAINING COLOR INK AMOUNT BECOMES LOW. REPLACE THE INK  
CARTRIDGE. MODEL OF COLOR INK CARTRIDGE: XXXYY02

A2

BLACK            COLOR

A3 ACTION

A4 CLOSE

FIG. 10

FROM S30

S410 IS PROCESSING TERMINATED?

S411 DELIVERY PURCHASE?

S412 CONNECT TO CONSUMABLE DEALER DATABASE SITE

S413 SEND TYPE INFORMATION ST

S414 ACQUIRE SELLING AGENCY INFORMATION DEAL AND SELLING  
CONDITION INFORMATION TERM AND DISPLAY THEM ON DISPLAY SECTION

S415 DOES DEAL CONTAIN STOCK INFORMATION?

S416 ORDERING REQUEST MADE?

S417 SEND PURCHASE INFORMATION BUY (IMMEDIATE DELIVERY)

S418 RESERVATION REQUEST MADE?

S419 SEND PURCHASE INFORMATION BUY (RESERVATION)

S420 REGISTER REFUSAL OF EXECUTION OF CARTRIDGE ORDERING ASSIST  
SEQUENCE

S421 IS EXECUTION OF CARTRIDGE ORDERING ASSIST SEQUENCE  
REFUSED?

S422 CONNECT TO CONSUMABLE DEALER DATABASE SITE

S423 SEND TYPE INFORMATION ST AND RESIDENT AREA INFORMATION  
REG

S424 ACQUIRE SELLING AGENCY INFORMATION DEAL AND DISPLAY ON  
DISPLAY SECTION

S425 RESERVATION REQUEST MADE?

S426 SEND RESERVATION INFORMATION TO SELLING AGENCY ADDRESS  
TO S50

FIG. 11



B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

B2 BLACK COLOR

B3 DELIVERY PURCHASE

B4 STORE PURCHASE

B5 CANCEL

FIG. 12

ONLINE PURCHASE

C1 ID

C2 PASSWORD

C3 EXECUTE

C4 RETURN

IF YOU ARE UNREGISTERED, ACQUIRE ID.

C5 ID ACQUISITION

FIG. 13

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

DELIVERY PURCHASE

EMPTY VESSEL COLLECTION SERVICE

D1 YES

D2 NO

D3 RETRIEVAL EXECUTION

D4 RETURN

FIG. 14

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

SELLING AGENCY: DELIVERY E1

STOCK CHECK E2

RETURN E3

FIG. 15

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

SELLING AGENCY: DELIVERY

INK CARTRIDGE: IN STOCK

ORDER F1

RETURN F2

FIG. 16

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

INK CARTRIDGE AGENCY

\*SPECIFY AREA

HOKKAIDO

TOHOKU

HOKURIKU

KOSHINETSU

KANTO

KINKI

SHIKOKU

CHUGOKU

KYUSHU

OKINAWA

FIG. 17

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

KANTO AREA

H1

TOKYO

23 WARDS, HINO CITY, HACHIOJI CITY, CITY

PREFECTURE

CITY, CITY, CITY, CITY

FIG. 18

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

KANTO AREA

TOKYO CHIYODA-KU

I1

FAST CONVENIENCE STORE

KASUMIGASEKI STATION STORE: KASSUMIGASEKI, CHIYODA-KU ... TEL

NAGATA STATION STORE: NAGATA-MACHI, CHIYODA-KU ... TEL

FIG. 19

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

FAST CONVENIENCE STORE: KASUMIGASEKI STATION STORE,

KASUMIGASEKI, CHIYODA-KU ... TEL

KASUMIGASEKI

SEPSON INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

INK CARTRIDGE: IN STOCK

STORE PURCHASE RESERVATION J1

NO RESERVATION J2

FIG. 15

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

SEpson INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

INK CARTRIDGE: IN STOCK

RESERVATION IS ACCEPTED.

COME WITHIN DAYS.

QUIT K1

CANCEL K2

PRINT K3

Fig. 1

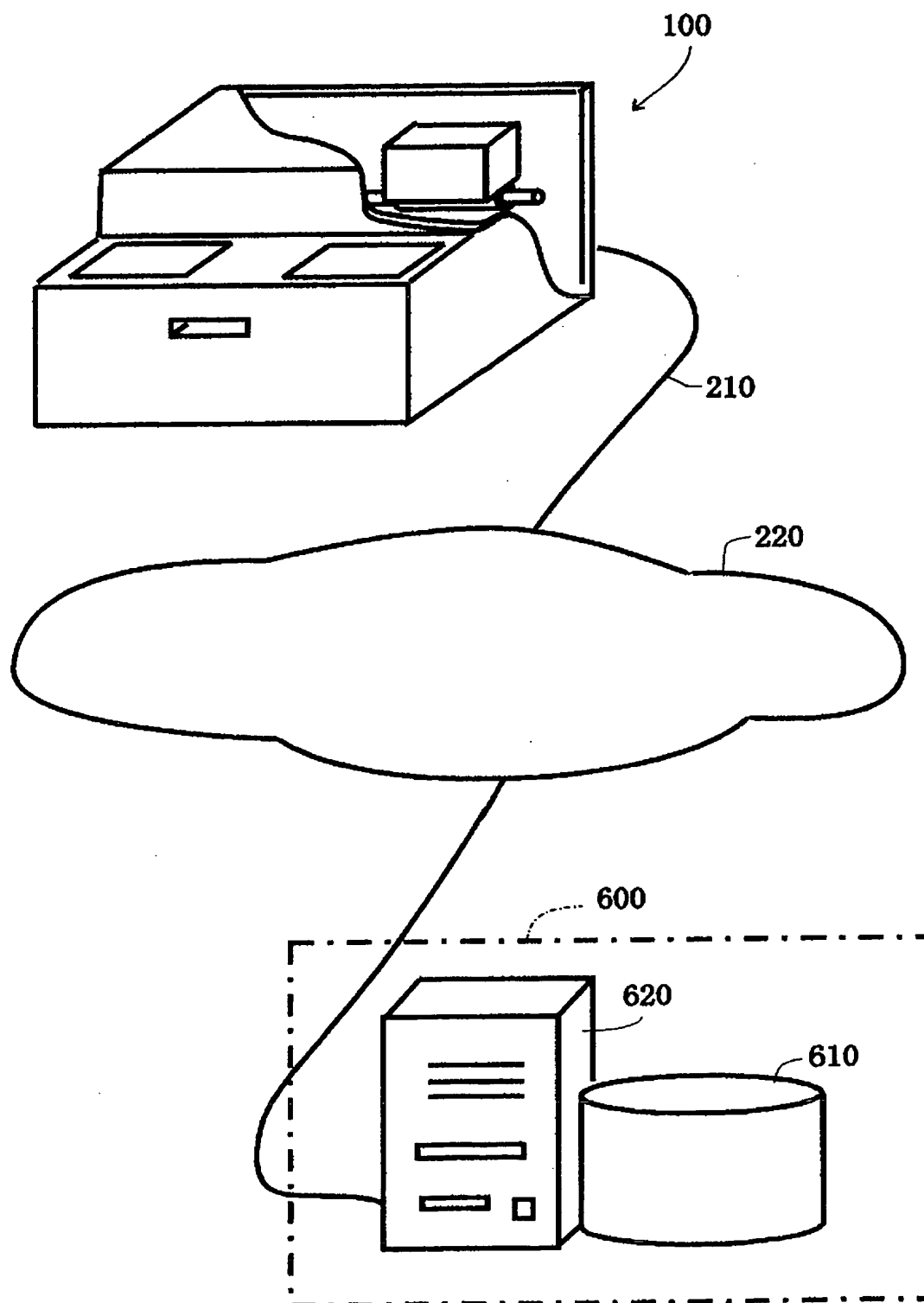


Fig. 2

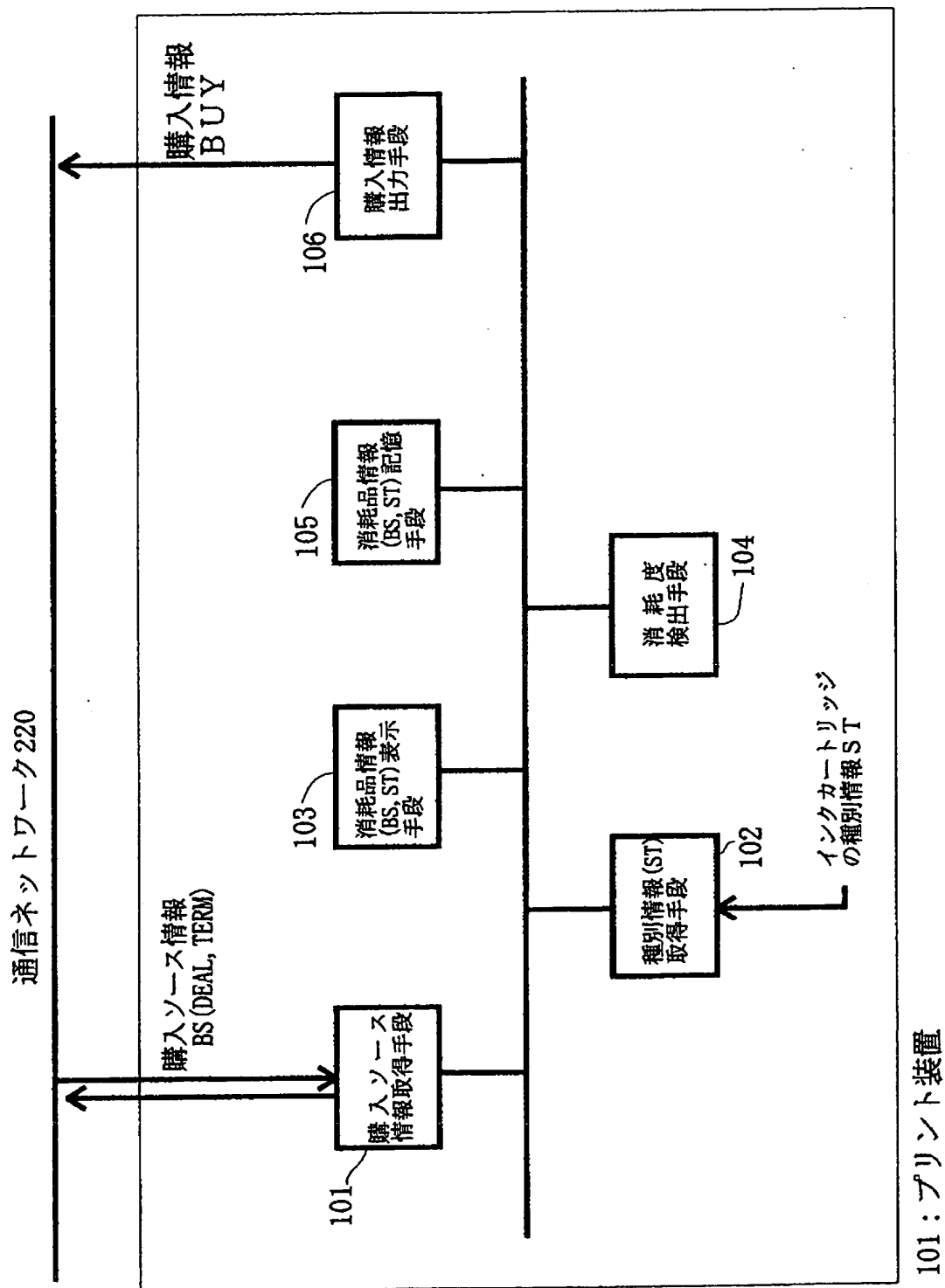


FIG. 2

101 PRINT UNIT

101 PURCHASE SOURCE INFORMATION ACQUISITION MEANS

102 TYPE INFORMATION (ST) ACQUISITION MEANS

TYPE INFORMATION (ST) OF INK CARTRIDGE

103 CONSUMABLE INFORMATION (BS, ST) DISPLAY MEANS

104 CONSUMPTION DEGREE DETECTION MEANS

105 CONSUMABLE INFORMATION (BS, ST) STORAGE MEANS

106 PURCHASE INFORMATION OUTPUT MEANS

PURCHASE INFORMATION BUY (DEAL, TERM)

PURCHASE SOURCE INFORMATION BS

220 COMMUNICATION NETWORK

110, 410, 510 CENTRAL PROCESSING SECTION



Fig. 3

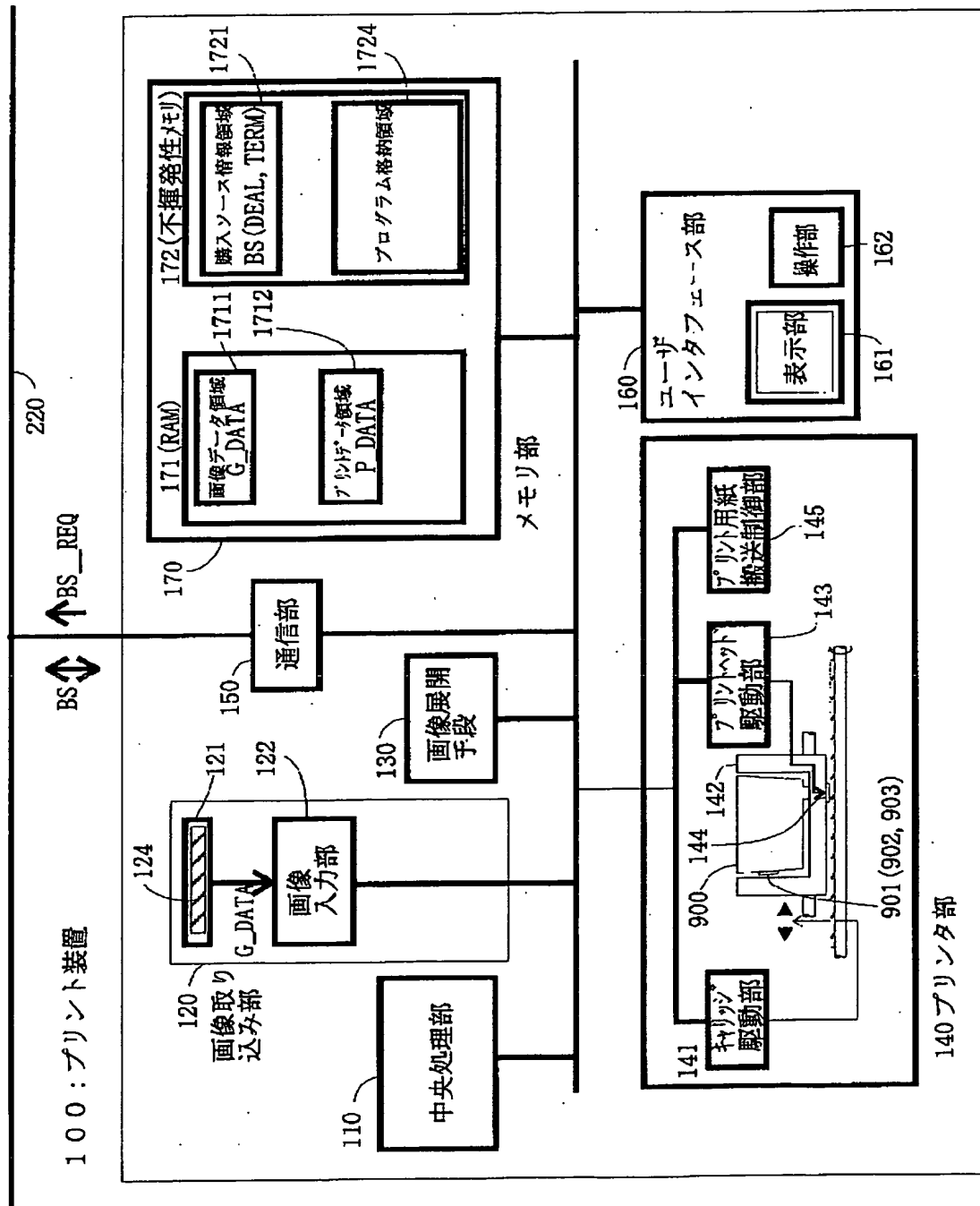


FIG. 3

100 PRINT UNIT

110 CENTRAL PROCESSING SECTION

120 IMAGE READ SECTION

122 IMAGE INPUT SECTION

130 image expansion means

140 printer section

141 carriage drive section

143 PRINT HEAD DRIVE SECTION

145 PRINT PAPER TRANSPORT CONTROL SECTION

150 COMMUNICATION SECTION

160 USER INTERFACE SECTION

161 DISPLAY SECTION

162 OPERATION SECTION

170 MEMORY SECTION

1711 IMAGE DATA AREA G\_DATA

1712 PRINT DATA AREA P\_DATA

172 (NONVOLATILE MEMORY)

1721 PURCHASE SOURCE INFORMATION AREA BS (DEAL, TERM)

1724 PROGRAM STORAGE AREA

Fig. 4

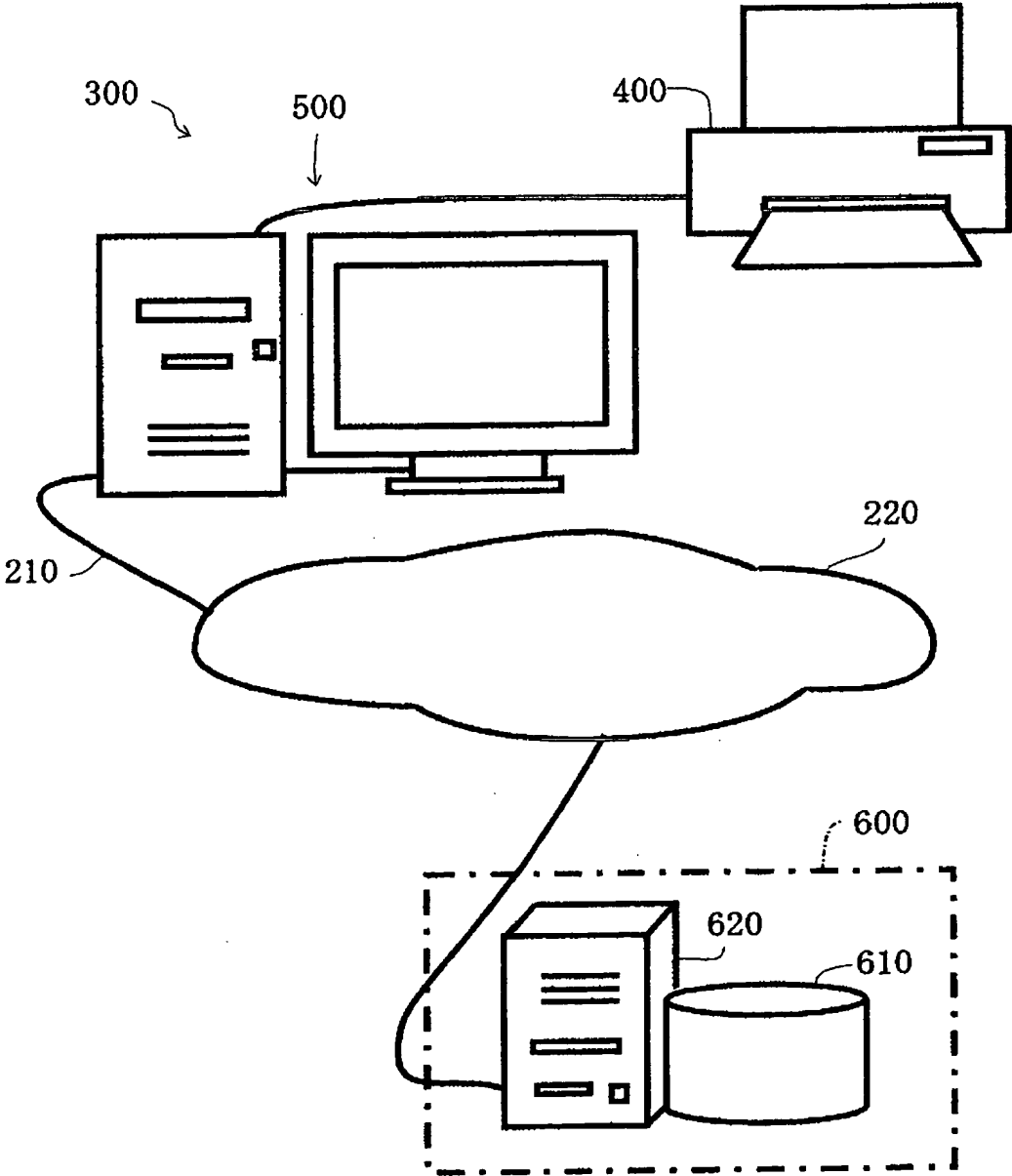


Fig. 5

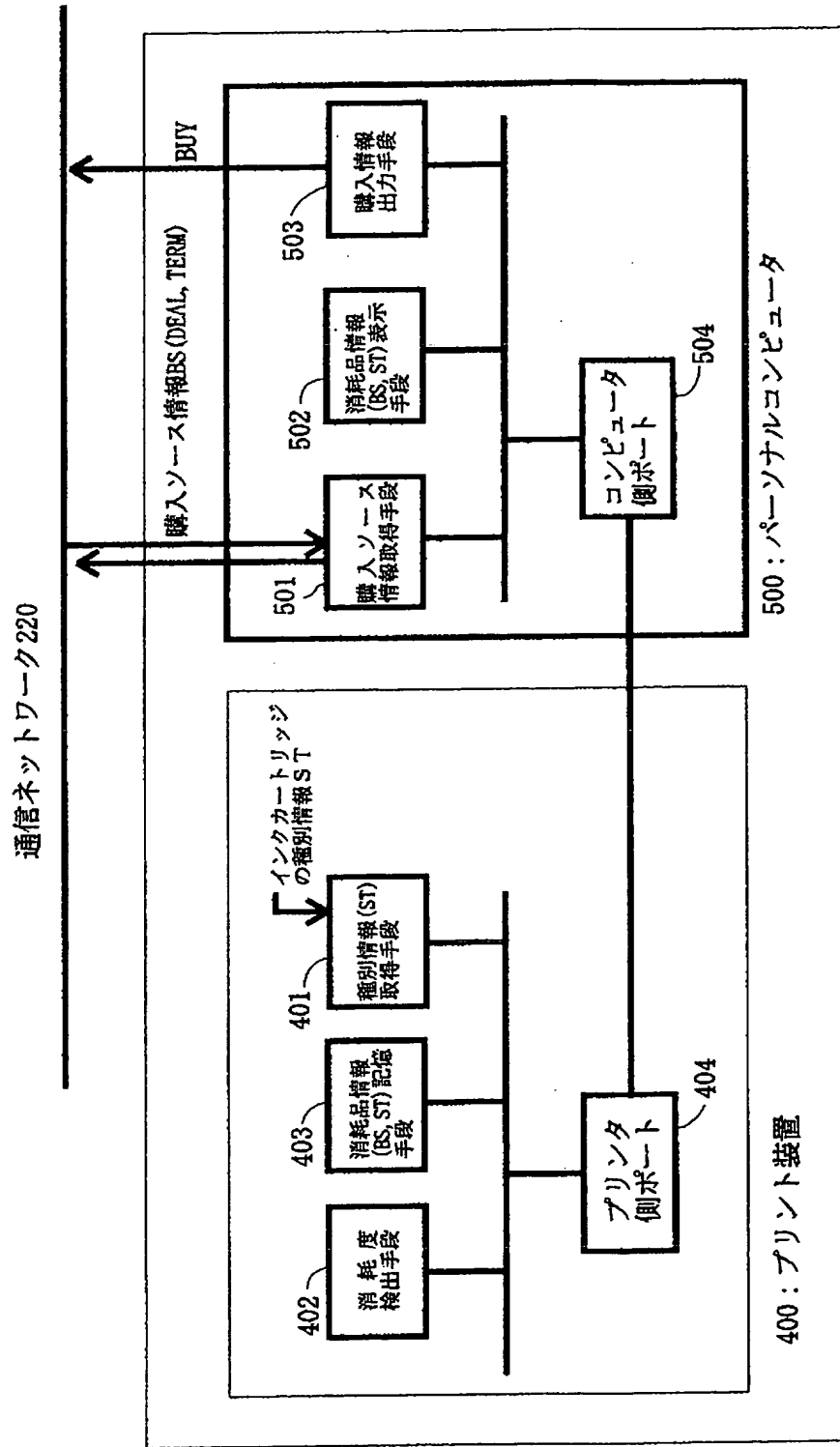


FIG. 5

220 COMMUNICATION NETWORK

400 PRINT UNIT

401 TYPE INFORMATION ACQUISITION MEANS

402 CONSUMPTION DEGREE DETECTION MEANS

403 CONSUMABLE INFORMATION STORAGE MEANS

404 PRINTER-SIDE PORT

TYPE INFORMATION ST FOR INK CARTRIDGE

PURCHASE SOURCE INFORMATION BS (DEAL, TERM)

500 PERSONAL COMPUTER

501 PURCHASE SOURCE INFORMATION ACQUISITION MEANS

502 CONSUMABLE INFORMATION (BS, ST) DISPLAY MEANS

503 PURCHASE INFORMATION OUTPUT MEANS

504 COMPUTER-SIDE PORT

10



FIG. 6

400 PRINT UNIT

410 CENTRAL PROCESSING SECTION

420 PRINTER SECTION

421 CARRIAGE DRIVE SECTION

423 PRINT HEAD DRIVE SECTION

425 PRINT PAPER TRANSPORT CONTROL SECTION

430 MEMORY SECTION

PRINT DATA AREA P\_DATA

432 (NONVOLATILE MEMORY)

PROGRAM STORAGE AREA

440 PORT

500 PERSONAL COMPUTER

510 CENTRAL PROCESSING SECTION

520 COMMUNICATION SECTION

530 USER INTERFACE SECTION

531 DISPLAY SECTION

532 OPERATION SECTION

540 MEMORY SECTION

542 (NONVOLATILE MEMORY)

PROGRAM STORAGE AREA

560 PORT

Fig. 7

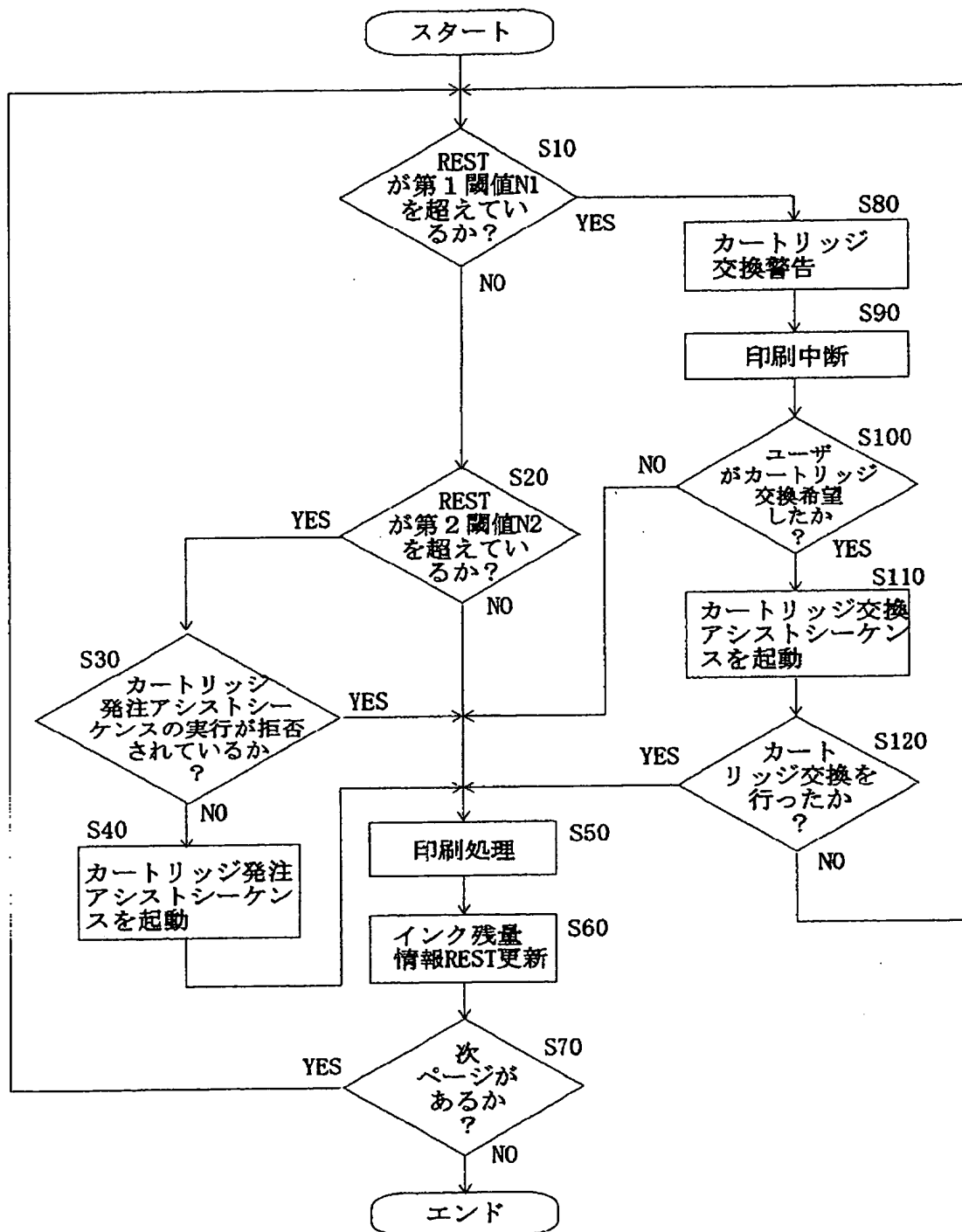




FIG. 7

START

S10 IS REST EQUAL ABOVE FIRST THRESHOLD VALUE N1?

S20 IS REST EQUAL ABOVE SECOND THRESHOLD VALUE N2?

S30 IS EXECUTION OF CARTRIDGE ORDERING ASSIST SEQUENCE  
REFUSED?

S40 START CARTRIDGE ORDERING ASSIST SEQUENCE

S50 PERFORM PRINT PROCESSING

S60 UPDATE INK REMAINING AMOUNT INFORMATION REST

S70 DOES ANOTHER PAGE EXIST?

END

S80 DISPLAY CARTRIDGE REPLACEMENT WARNING

S90 INTERRUPT PRINT

S100 DOES USER MAKE A REQUEST FOR REPLACING CARTRIDGE?

S110 START CARTRIDGE REPLACEMENT ASSIST SEQUENCE

S120 CARTRIDGE REPLACED?

Fig. 8

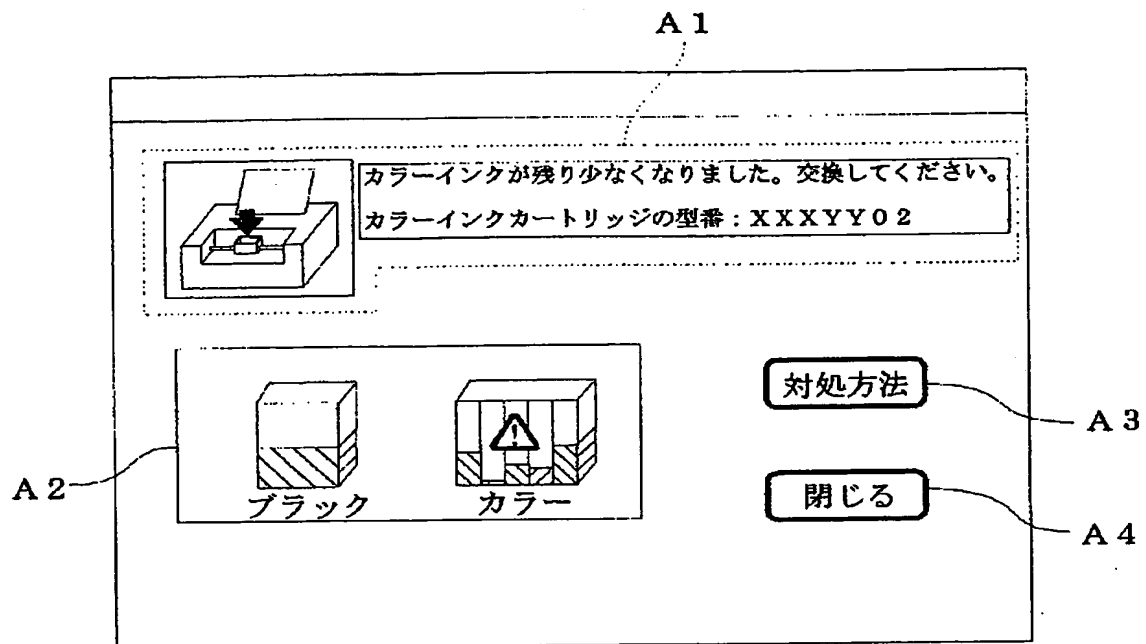


FIG. 8

A1

THE REMAINING COLOR INK AMOUNT BECOMES LOW. REPLACE THE INK  
CARTRIDGE. MODEL OF COLOR INK CARTRIDGE: XXXYY02

A2

BLACK            COLOR

A3 ACTION

A4 CLOSE

Fig. 9

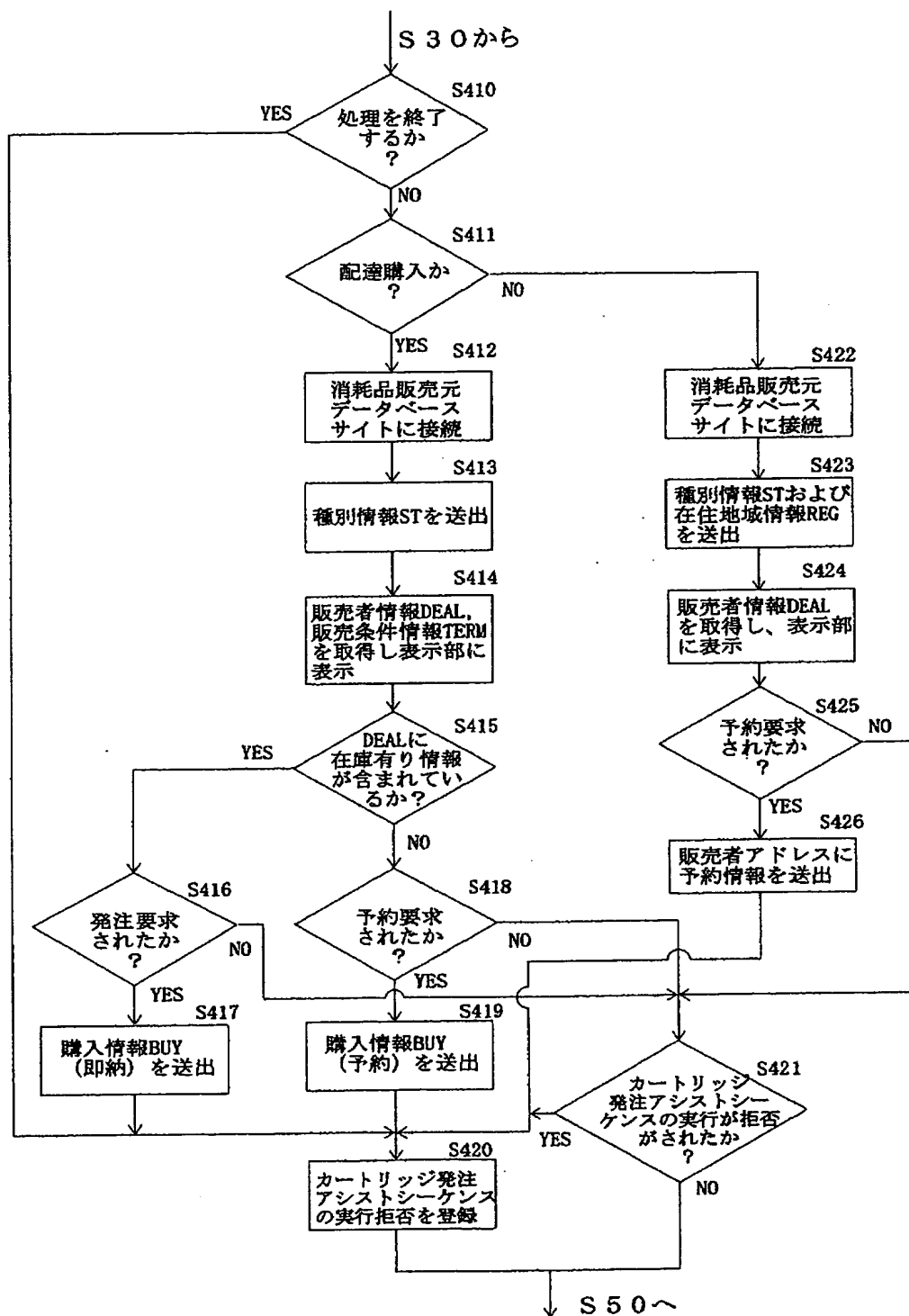


FIG. 9

FROM S30

S410 IS PROCESSING TERMINATED?

S411 DELIVERY PURCHASE?

S412 CONNECT TO CONSUMABLE DEALER DATABASE SITE

S413 SEND TYPE INFORMATION ST

S414 ACQUIRE SELLING AGENCY INFORMATION DEAL AND SELLING  
CONDITION INFORMATION TERM AND DISPLAY THEM ON DISPLAY SECTION

S415 DOES DEAL CONTAIN STOCK INFORMATION?

S416 ORDERING REQUEST MADE?

S417 SEND PURCHASE INFORMATION BUY (IMMEDIATE DELIVERY)

S418 RESERVATION REQUEST MADE?

S419 SEND PURCHASE INFORMATION BUY (RESERVATION)

S420 REGISTER REFUSAL OF EXECUTION OF CARTRIDGE ORDERING  
ASSIST SEQUENCE

S421 IS EXECUTION OF CARTRIDGE ORDERING ASSIST SEQUENCE  
REFUSED?

S422 CONNECT TO CONSUMABLE DEALER DATABASE SITE

S423 SEND TYPE INFORMATION ST AND RESIDENT AREA INFORMATION  
REG

S424 ACQUIRE SELLING AGENCY INFORMATION DEAL AND DISPLAY ON  
DISPLAY SECTION

S425 RESERVATION REQUEST MADE?

S426 SEND RESERVATION INFORMATION TO SELLING AGENCY ADDRESS  
TO S50

Fig. 10

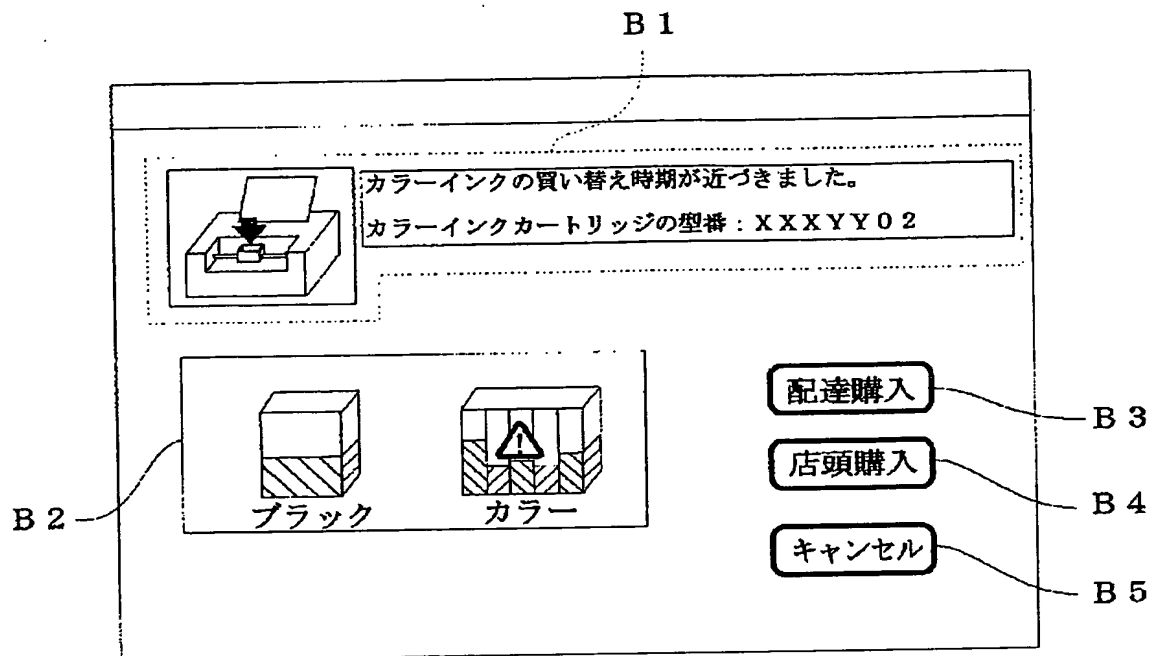


Fig. 11

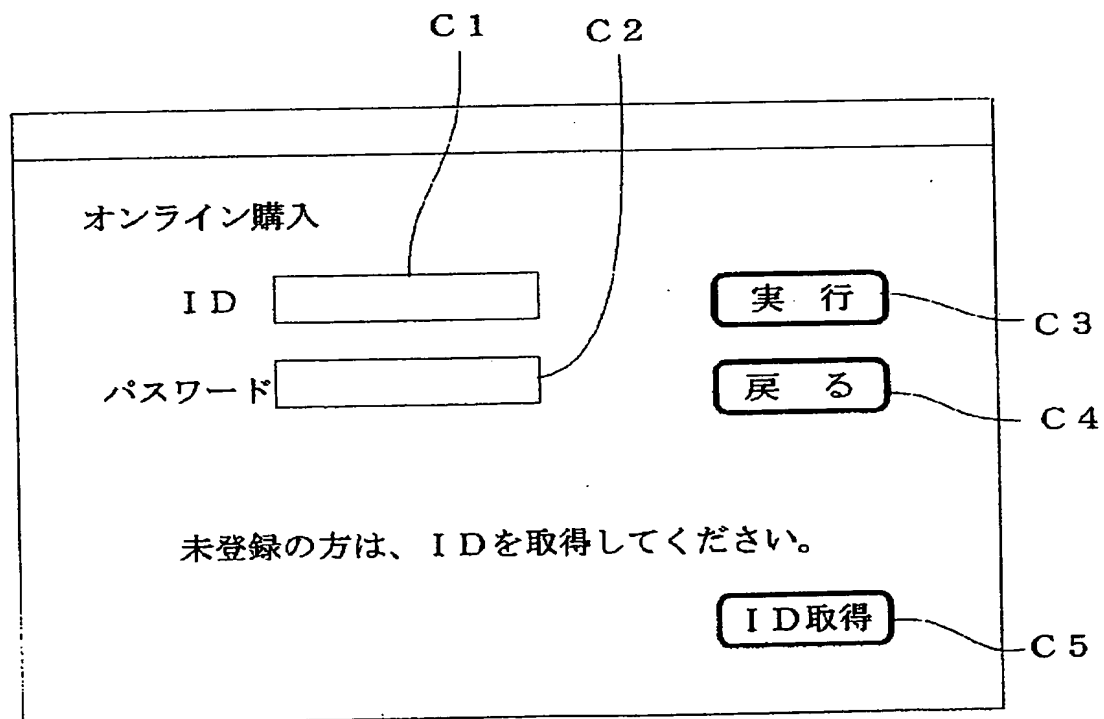




FIG. 10

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

B2 BLACK COLOR

B3 DELIVERY PURCHASE

B4 STORE PURCHASE

B5 CANCEL

FIG. 11

ONLINE PURCHASE

C1 ID

C2 PASSWORD

C3 EXECUTE

C4 RETURN

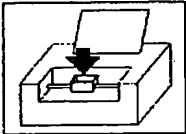
IF YOU ARE UNREGISTERED, ACQUIRE ID.

C5 ID ACQUISITION



Fig. 12

B 1



カラーインクの買い替え時期が近づきました。  
カラーインクカートリッジの型番：XXXXYY02

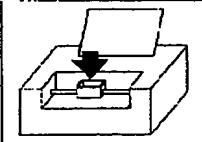
配達購入

空容器回収サービスを  
D 1 ☒ 希望する  
D 2 ☐ 希望しない

検索実行 D 3  
戻る D 4

Fig. 13

B 1



カラーインクの買い替え時期が近づきました。  
カラーインクカートリッジの型番：XXXXYY02

回収サービス：有

販売者：  △  
▽ E 1

在庫確認 E 2  
戻る E 3

FIG. 12

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

DELIVERY PURCHASE

EMPTY VESSEL COLLECTION SERVICE

D1 YES

D2 NO

D3 RETRIEVAL EXECUTION

D4 RETURN

FIG. 13

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

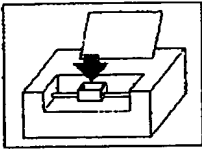
SELLING AGENCY: DELIVERY E1

STOCK CHECK E2

RETURN E3

Fig. 14

B 1



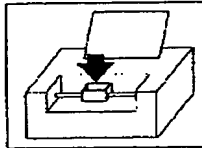
カラーインクの買い替え時期が近づきました。  
カラーインクカートリッジの型番：XXXXYY02

回収サービス：有  
販売者： ○○デリバリー  
在庫：有

発注 F 1  
戻る F 2

Fig. 15

B 1



カラーインクの買い替え時期が近づきました。  
カラーインクカートリッジの型番：XXXXYY02

インクカートリッジ取扱店

\* 地域を指定してください。

北海道  
東北  
関東  
甲信越  
近畿  
中国  
四国  
九州  
沖縄  
北陸

G 1

FIG. 14

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

SELLING AGENCY: DELIVERY

INK CARTRIDGE: IN STOCK

ORDER F1

RETURN F2

FIG. 15

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

INK CARTRIDGE AGENCY

\*SPECIFY AREA

HOKKAIDO

TOHOKU

HOKURIKU

KOSHINETSU

KANTO

KINKI

SHIKOKU

CHUGOKU

KYUSHU

OKINAWA

Fig. 16

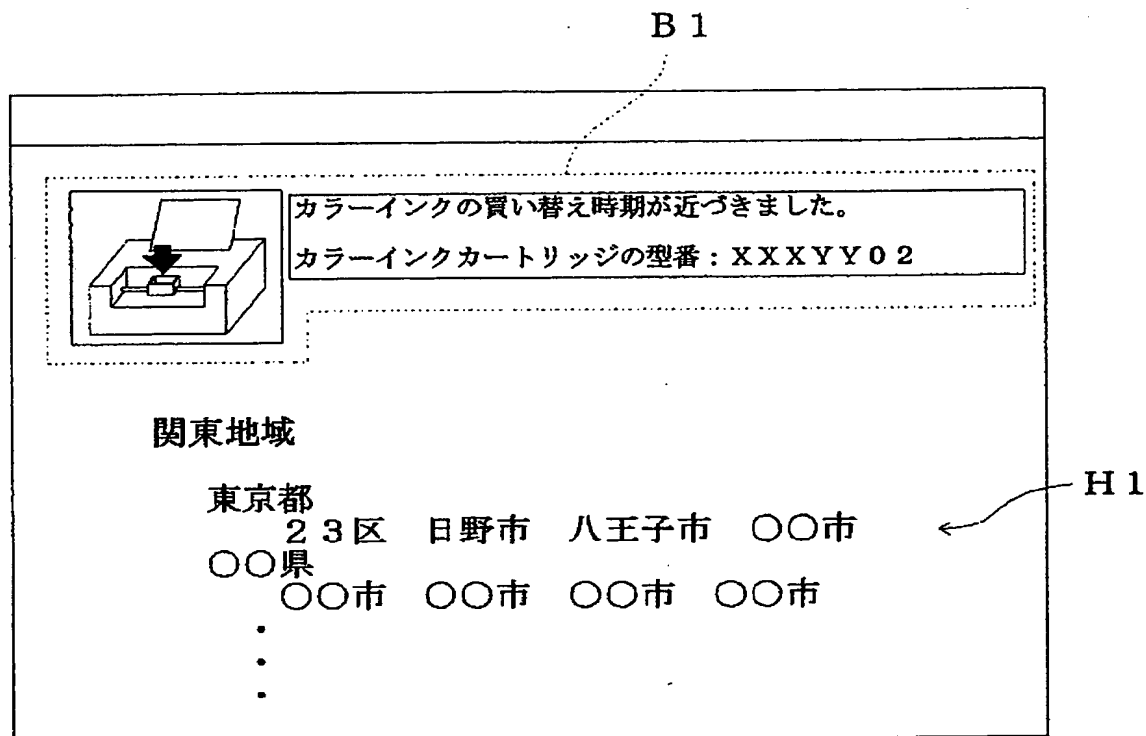


Fig. 17

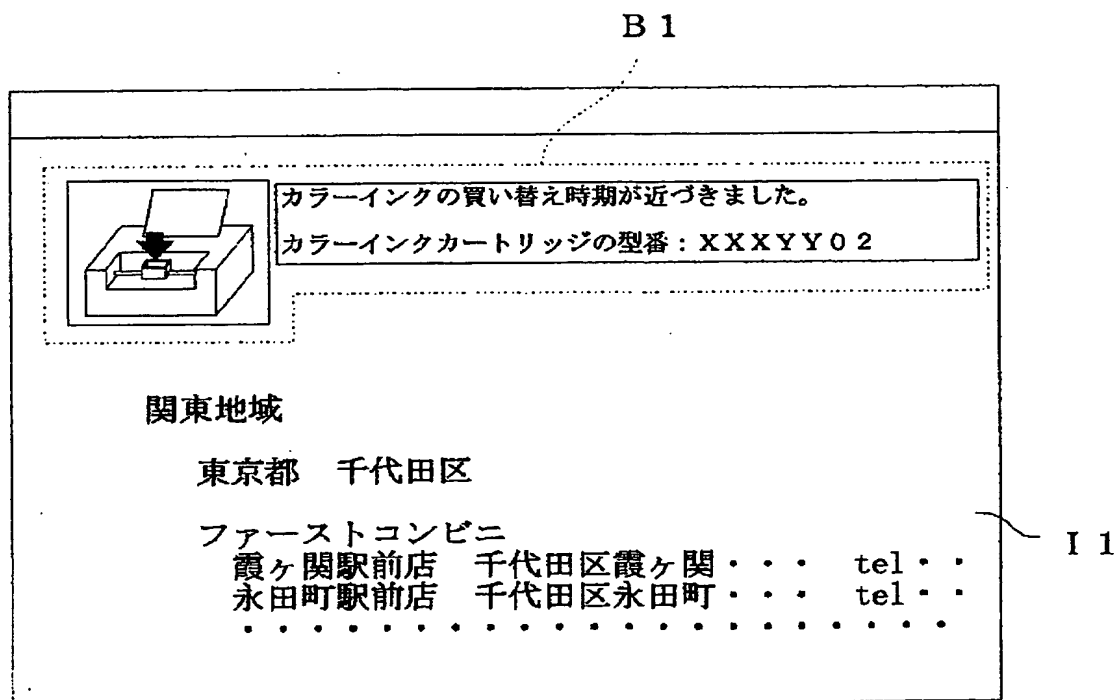


FIG. 16

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

KANTO AREA

H1

TOKYO

23 WARDS, HINO CITY, HACHIOJI CITY, CITY

PREFECTURE

CITY, CITY, CITY, CITY



FIG. 17

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

KANTO AREA

TOKYO CHIYODA-KU

I1

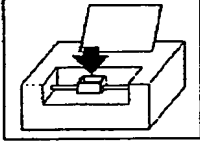
FAST CONVENIENCE STORE

KASUMIGASEKI STATION STORE: KASSUMIGASEKI, CHIYODA-KU ... TEL

NAGATA STATION STORE: NAGATA-MACHI, CHIYODA-KU ... TEL

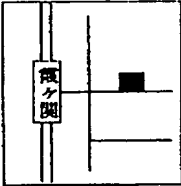
Fig. 18

B 1



カラーインクの買い替え時期が近づきました。

カラーインクカートリッジの型番：XXXYY02



ファーストコンビニ：霞ヶ関駅前店 千代田区霞ヶ関・・・  
tel・・・

セブソンインクカートリッジ：XXXYY02

回収サービス：有

在庫：有

店頭購入を

予約する

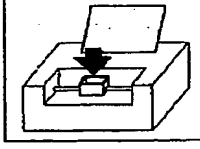
予約しない

J 1

J 2

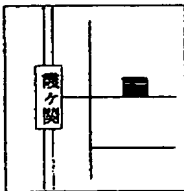
Fig. 19

B 1



カラーインクの買い替え時期が近づきました。

カラーインクカートリッジの型番：XXXYY02



ファーストコンビニ：霞ヶ関駅前店 千代田区霞ヶ関・・・  
tel・・・

セブソンインクカートリッジ：XXXYY02

回収サービス：有

在庫：有

ご予約をお受けしました。

○日以内におこしてください。

終了

取消

プリント

K 1

K 2

K 3

FIG. 18

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

FAST CONVENIENCE STORE: KASUMIGASEKI STATION STORE,

KASUMIGASEKI, CHIYODA-KU ... TEL

KASUMIGASEKI

SEpson INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

INK CARTRIDGE: IN STOCK

STORE PURCHASE RESERVATION J1

NO RESERVATION J2

FIG. 19

B1

THE REPLACEMENT PURCHASE TIMING OF COLOR INK DRAWS NEAR.

MODEL OF COLOR INK CARTRIDGE: XXXYY02

SEPSON INK CARTRIDGE: XXXYY02

COLLECTION SERVICE: AVAILABLE

INK CARTRIDGE: IN STOCK

RESERVATION IS ACCEPTED.

COME WITHIN DAYS.

QUIT K1

CANCEL K2

PRINT K3